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1998

## Systematic approaches to the presentation of academic studies

Nigel Cox  
*University of Wollongong*

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**SYSTEMATIC APPROACHES TO THE PRESENTATION  
OF ACADEMIC STUDIES**

A thesis in fulfilment of the requirements  
for the award of the degree of

**DOCTOR OF PHILOSOPHY**

from

**THE UNIVERSITY OF WOLLONGONG**

by

**NIGEL COX. M.A., (Cantab), Dip. Ed. (Sydney).**

**FACULTY OF EDUCATION  
1998**

## SHORT TABLE OF CONTENTS

INTRODUCTION TO PART I THE EDUCATION OF THE MIND	1
CHAPTER I: INTRODUCTION	4
CHAPTER II: AN ACADEMIC APPROACH TO THE HUMAN BRAIN	18
CHAPTER III: THE STUDENT BRAIN AND ITS SELF	27
INTRODUCTION to PART II THE THREE WORLDS OF KNOWLEDGE	34
CHAPTER IV: LANGUAGE AND CONCEPTS	40
INTRODUCTION to PART III EDUCATION AND KNOWLEDGE	53
CHAPTER V: THE BEHAVIOURAL SCIENCES AND RESEARCH	58
CHAPTER VI: PROBLEMS IN RESEARCH	86
CHAPTER VII: AN INTRODUCTION TO THE ELEMENTS OF GENERAL SYSTEMS THEORY	97
CHAPTER VIII: EXPLANATION AND SYSTEMATICS	113
CHAPTER IX: EXPLANATION AND THE JUSTIFICATION OF BELIEFS	137
INTRODUCTION TO PART IV SCIENCE AND SYSTEMS ANALYSIS	170
CHAPTER X: EXPLANATIONS AND SYSTEMS	180
CHAPTER XI: THE ADVANCEMENT OF SCIENCE	203
APPENDICES	210
BIBLIOGRAPHY	252
GLOSSARY	269

## TABLE OF CONTENTS

Acknowledgments	vi
Abstract	vii
Statement	ix
Preface	x

INTRODUCTION TO PART I THE EDUCATION OF THE MIND	1
---	---

### CHAPTER I : INTRODUCTION

§ 1: The Objective	4
§ 2: The Historical Background to Language	5
§ 3: Language and Analytical Thinking	11
§ 4: Modern Education	13
§ 5: The Period 1750 - 1950	15

### CHAPTER II: AN ACADEMIC APPROACH TO THE HUMAN BRAIN - THE SELF

§1: Introduction	18
§ 2: The Brain: a Neuroscientific Approach	20
§ 3: The Search for the Conscious Self	23
§ 4: Language Brain Lateralisation	24

### CHAPTER III : THE STUDENT BRAIN AND ITS SELF

§ 1: Introduction	27
§ 2: Moral Issues	28
§ 3: The discipline of Academic Study	31
§ 4: Preliminary training for 'Taskmaster'	31

INTRODUCTION to PART II	34
THE THREE WORLDS OF KNOWLEDGE	

#### CHAPTER IV: LANGUAGE AND CONCEPTS

§ 1: Introduction	40
§ 2: Galileo and Newton	46
§ 3: Isaac Newton and the Origin of CCA	46
§ 4: CCA in Theory and Practice	48
§ 5: Systematics and Systems Approach	50

#### INTRODUCTION to PART III

#### EDUCATION AND KNOWLEDGE

§ 1: The Search for Scientific Method	53
§ 2: Newtonian Science	53
§ 3: The Age of Science	55

#### CHAPTER V: THE BEHAVIOURAL SCIENCES

#### AND RESEARCH

§ 1: Sciences in general	58
§ 2: Isomorphism and Systems Analysis	61
§ 3: Laws and Systems	64
§ 4: The Approach to Scientific Enquiry	66
§ 5: Systems Research and Enquiry	67
§ 6: Systems Analysis and Charles Darwin	69
§ 7: Systems research and neo-Darwinism	71
§ 8: The Basis of the Behavioural Sciences	73
§ 9: Experiment and Explanation - the Panama Canal.	76
§ 10: Experiment in the Sciences	79

§ 11: Experiment in the Social Sciences	82
---	----

CHAPTER VI : PROBLEMS IN RESEARCH	86
-----------------------------------	----

§ 1: The Problem of the Problem of Induction	87
§ 2: The Falsification of Hypotheses	91
§ 3: Statistical Generalisation and research in the social sciences	92
§ 4: Statistical Generalisation	94

CHAPTER VII: AN INTRODUCTION TO THE ELEMENTS OF GENERAL SYSTEMS THEORY	97
---	----

§ 1: The Origins of General Systems Analysis	98
§ 2: Operational Research and its Origins	101
§ 3: An Introduction to General Systems Analysis	102
§ 4: Systems and the Social Sciences	107
§ 5: Experiments, Models and the Sciences	109
§ 6: Conclusion	111

CHAPTER VIII : EXPLANATION AND SYSTEMATICS	113
--	-----

§ 1: The Language of Knowing	113
§ 2: Aspects of Beliefs	114
§ 3: Observation and Experiment	116
§ 4: The Formulation of Laws	119
§ 5: The Consensus Approach	121
§ 6: Conjectures and Refutations	122
§ 7: Explanation in terms of Systems Analysis	125
§ 8: The Harris Experiment	126
§ 9: The Harris Thesis - Approach and Structure	127



## CHAPTER IX : EXPLANATION AND JUSTIFICATION OF BELIEFS

OF BELIEFS	137
§ 1: The Identification of the Problem	138
§ 2: Means of Justification	141
§ 3: A Simplified GST Analysis of the Harris Thesis	146
§ 4: The Use of Random Sampling Techniques	148
§ 5: The Lessons of the Harris Experiment	152
§ 6: Explanation and Qualitative Research	153
§ 7: Systematics and its Implications	156
§ 8: The Academic Relevance of General Systems Analysis	158
§ 9: Explanation and Operational Research	159
§ 11: The Validity of Random Sampling	162

## INTRODUCTION TO PART IV

SCIENCE AND SYSTEMS	170
---------------------	-----

## CHAPTER X : EXPLANATIONS AND SYSTEMS

§ 1: The Development of Systems Analysis	180
§ 2: The Algebra of Systems	182
§ 3: The Symbolic Representation of Systems	186
§ 4: Ross Ashby, Systematics and CCA	189
§ 5: Systems, Concepts and Epistemology	189
§ 6: The Teaching of CCA	193
§ 7: Systems and Neurophysiology	195
§ 8: The Wernicke-Geschwind Language Model	196

CHAPTER XI : THE ADVANCEMENT OF SCIENCE	203
§ 1: Changes in Knowledge	203
APPENDIX A The Person	210
APPENDIX B The Different kinds of 'T'	215
APPENDIX C CCA Exercises	220
APPENDIX D Assumptions	224
APPENDIX E Problem-solving	228
APPENDIX F Axiomatic Systems	234
APPENDIX G Harris Article	240
APPENDIX H Wason Test	246
APPENDIX J Marr	250
BIBLIOGRAPHY	252
GLOSSARY	269
FIGURES	
1. The Three Worlds (Popper & Eccles)	34
2. Eratosthenes ( Hall & Hall)	44
3. Wernicke-Geschwind Model (Kandel & Schwartz)	197
4. Chiasmus Experiment (Sperry)	214
5. Sanders Illusion	217
6. Marr Algorithm (Marr)	251

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## A B S T R A C T

The basic purpose of this Dissertation is to help to fill the gap experienced by many students between secondary and tertiary education; a gap which arises from the failure of students to understand the need for the use of the critical conceptual skills and systems analysis. These have enabled *Homo sapiens sapiens* (*Hss*) to use his experience of his environment to apply his understanding to the solution of problems presented by that environment; phylogenetically speaking, it has taken short period for *Hss* to become the dominant species.

This involves, first, the consideration of historical studies of the intellectual and linguistic means that evolved to meet these needs; complex problems always involve complex systems. Secondly, there is a consideration of the progressive development of those skills by institutionalised education and *Hss*'s outstanding intellectual mastery of his environment and the use of systems analysis and conceptual thinking. This is followed by an attempt, by tracing the development of those skills to show how they may be acquired and developed by the appropriate training and discipline of the vast complexity neurological systems of the human brain, especially in the use of language, that have evolved to deal with those problems involved in securing the survival of *Hss*. Thus the tertiary student needs to be introduced to the complexities of the infinite variety of systems, the analysis of which forms the basis of the subject matter of the tertiary student's studies.

An argument for the need for systematic approaches to modern academic studies is introduced. The increasing importance for the modern student of an awareness of the developments in systems study and conceptual analysis is emphasised. Some limited idea of the significance of such an approach, may be of value, illustrated by detailed historical examples. The thesis of this study is that students and their teachers from the outset of their tertiary education should be made

specifically aware of this historical background, especially through study of the actual contribution of scientists. Hence the emphasis on the development of systems analysis and conceptual thinking that began with Galileo and Isaac Newton, and was followed later by Einstein and others. Striking developments in academic thinking have developed with the computer age, all of which must be seen in the perspective of the development of language and thinking skills generally, in the axiomatic deductive thinking of Euclid, the systems analysis of Ross Ashby, Wiener and Beer, and the practical studies of academic thinking as exemplified in the Thomas Kuhn's book on the methods of scientists. Stimulated by these, teachers can arouse the interest and enthusiasm of students to cultivate the thinking systems of their own brains and minds, rather than use a purely epistemological approach.

It is suggested that such knowledge and its application should eventually be imparted in structured courses, with explanations and exercises in the presentation of the results of academic studies of typical problems in the form of essays, assessments and examinations. Thus students can become familiar with the structure of modern academic thinking and aware of the methods of systems analysis.

This thesis contains no material which has been accepted for the award of any degree or diploma in any University, and to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text in the thesis.

Nigel Cox